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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,530	01/06/2004	Junichi Komagata	SON-2895	3306

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RADER FISHMAN & GRAUER PLLC
LION BUILDING
1233 20TH STREET N.W., SUITE 501
WASHINGTON, DC 20036

EXAMINER	
SOL, ANTHONY M	

ART UNIT	PAPER NUMBER
2619	

MAIL DATE	DELIVERY MODE
12/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/751,530	KOMAGATA ET AL.	
	Examiner	Art Unit	
	Anthony Sol	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4 and 6-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4 and 6-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

- Applicant's Amendment filed 9/24/2007 is acknowledged.
- Claims 1 and 4 have been amended.
- Claims 2 and 5 have been canceled.
- Claims 7 and 8 have been added.
- Claims 1, 3, 4 and 6-8 remain pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3, 4, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pub. No. 2004/0114516 A1 ("Iwata") in view of U.S. Patent No. 7,039,063 B2 ("Krishnakumar").

Regarding claims 1, 4, and 7

Iwata shows in fig. 5A transmitting a plurality of real time streams ("premium packet") and a non-real time stream ("low priority packet") over a common transmission path.

Iwata shows in fig. 3 storing means 21, 22 for storing first packets ("premium

packet") that compose the real time streams and second packets ("low priority packet") that compose the non-real time stream.

Iwata further shows in fig. 3 transmitting means 2, 3, 5 for transmitting the first packets stored in the storing means at predetermined intervals T (fig. 5).

Iwata discloses transmitting the second packets when the transmission intervals of the first packets are longer than the transmission times of the second packets (see Iwata, para. 36, *If the packet queued last in the scheduling queue 31 is a "low priority packet", the scheduler section 3 checks whether or not the transmission end time of the "low priority packet" is earlier than the transmission start time of the received "premium packet" based on the transmission start time and the packet length of the "low priority packet" (in steps 106 and 107). If the check result shows that the transmission end time of the "low priority packet" is earlier than the transmission start time of the received "premium packet" (YES in the step S107), the scheduler section 3 queues, as one piece of data, information representing that the packet is a "premium packet", the transmission start time information and information on the length of the packet, at the end of the scheduling queue 31 (in steps 107 and 105)*).

Iwata does not disclose transmitting a first packet whose transmission end time is the earliest in the first packets when the transmission times of the first packets overlap, Iwata further does not disclose that the transmitting means is configured to calculate the transmission end times, transmission intervals, and transmission times of the first packets. Iwata still further does not disclose counting means configured to count the

time intervals of each of the first packets prior to respectively issuing requests to transmit each of the first packets to the transmitting means.

Krishnakumar shows in fig. 5, transmitting first packet RT1 whose transmission time is the earliest of group of real time packets RT1-RT4, in which the transmission times overlap.

Krishnakumar shows in fig. 3, transmission end time t25, in fig. 5 transmission intervals $t_{access.}$ and in fig. 3, transmission times t_{25}-t_{23}.

Krishnakumar discloses a timer (claimed counting means) when the station accesses the medium (claimed issuing requests to transmit each of the first packets to the transmitting means). Krishnakumar further discloses t_{inter}, the length of the real time packets (claimed time intervals). As an example Krishnakumar shows in fig. 5 that four real-time stations RT1 through RT4 are all active, i.e., have an ongoing connection with another station. Having transmitted packets at times t_{40}, t_{41}, t_{42} and t_{43}, they **set their respective timers to expire** at times t_{50}, t_{52}, t_{54} and t_{55}. The timer interval t_{access} is illustratively equal to a conventional packetization interval for voice transmissions, which is 25 ms (see col. 6, line 61 to col. 7, line 20)

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the packet scheduling apparatus of Iwata to include the scheduling of real time packets including transmission end times, transmission intervals and transmission times of the real-time packets along with a timer as taught by Krishnakumar. One skilled in the art would have been motivated to make the combination to avoid collisions in the transmission path.

Regarding claims 3, 6 and 8,

Iwata discloses that the "low priority packet" which influences the transmission of the "premium packet" is divided into a plurality of packets each having a length which falls within a transmission interval of the "premium packet" by the packet dividing section 4, and scheduled dynamically based on the transmission interval or load state of the "premium packet" (see abstract).

Iwata further discloses that if the transmission end time of the "low priority packet" is later than the transmission start time of the received "premium packet" (NO in the step 107), the scheduler section 3 divides the "low priority packet" into a plurality of packets each having a packet length enabling transmission based on the header format specification of each divided packet which is obtained by the packet division as specified by RFC791 (see para. 36).

Response to Arguments

3. Applicant's arguments filed 9/24/2007 have been fully considered but they are not persuasive.

- The Applicant argues on pg. 7 of the Remarks regarding claims 1 and 4 that while Krishnakumar discloses a timer, this timer is not used to count-down a time period whereupon a request to transmit is issued.
- The Examiner respectfully disagrees. Krishnakumar discloses that the timer is set to expire such that the station accesses the medium. That is, the time at

which the timer expires defines an expected time at which the real-time station in question should access the medium.

- The Applicant further argues on pg. 8 of the Remarks regarding claims 3 and 6 that the solution in Iwata does not appear to have anything to do with applying a multiplier to transmission times, or particularly a multiplier that comprises a positive coefficient that is smaller than one.
- The Examiner respectfully disagrees. Iwata discloses if the load state indicates that the division is necessary, the scheduler 32 divides the "low priority packets" into a plurality of packets (Iwata, para. 43) and thereafter updates the scheduling queue as shown in step 204 of fig. 4 (Iwata, para. 44). In other words, Iwata system determines when the load state, which is directly effected by the amount of real-time data (Iwata's premium packets), is high enough such that non-real time data (Iwata's low priority packets) does not have a chance to transmit within an acceptable amount of time. Therefore, Iwata system divides the low priority packets such that the packets can be placed into the scheduling queue 31 and transmitted earlier than before the division, which is shown in step 204 as a "update scheduling queue," effectively multiplying the original transmission time by less than 1, thus reducing the transmission time of non-real time packets. Therefore, the Examiner maintains that Iwata's packet division method effectively applies a multiplier smaller than one to the transmission times of second packets, which correspond to Iwata's low priority packets, e.g. non-real time packets.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Sol whose telephone number is (571) 272-5949. The examiner can normally be reached on M-F 7:30am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

12/21/07

WING CHAN
SUPERVISORY PATENT EXAMINER

AMS

12/21/2007